IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Silber et al.
Appl. No.:	09/980,702
Filed:	May 13, 2002
Title:	METHOD FOR NON-INVASIVE MEASUREMENT OF AN INTERNAL PRESSURE
Art Unit:	2855
Examiner:	Jermaine L. Jenkins
Docket No.:	DI-5790L US (112713-187)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

In response to the Office Action dated September 9, 2003, please amend the above-identified patent application as follows:

Amendments to the Specification begin on page 2.

Amendments to the Claims are reflected in the listing of claims which begins on page 4 of this paper.

Remarks begin on page 6 of this paper.

Abstracts of prior art reference DE 197 47 254 A1 are enclosed herewith.

Please amend the paragraph beginning on page 5, line 20 of the translation as follows:

A periodicity of the measured force is preferably determined and a window width for the formation of average value is coordinated at least from time to time with the periodicity. The periodicity can be determined, e.g., by counting the minima over a certain time period. It can be arranged for formation of average value to ~~takes~~ take place over a predetermined number of whole periods. This improves the accuracy of the average values. Since it is possible for the periodicity to vary, it can be provided that a predetermined number of average value formations will be performed with the same smoothing length, and the periodicity then re-determined.

Please amend the paragraph beginning at page 5, line 27 of the translation as follows:

A preferred embodiment provides for a first limit to be continuously formed that results from the fact that the relaxation curve drops monotonically, and a second limit is continuously formed that results from the fact that the slope of the relaxation curve decreases, and a change of the internal pressure is recognized if the relaxation curve exceeds one of the two limits. The change of the measured forces can have two causes. For the first, the forces change because of the relaxation behavior of the vessel, and for the other, the measured forces change when the internal pressure changes. This change can occur in different ways. It can be a jump, for example. This change is recognized quite reliably by the difference formation from average values with differing smoothing widths. However, the change can also result from a slowly changing internal pressure, e.g., when an infusion needle slowly becomes clogged. This change can be so small ~~absolutely~~ that it only slightly exceeds the changes of measured values occasioned by the relaxation behavior. However, such changes can be recognized in that a "slope triangle" is placed in the relaxation curve and a check is made to see whether the measured values are still within the triangle. It is known of course that the relaxation curve falls monotonically. If, therefore, measured values, or more precisely, the average value from the measure values, rises, then this cannot be explained by the relaxation. Conversely, it is known that the negative slope of the relaxation curve always becomes smaller in amount and thus asymptotically approaches a straight line. If this gradient suddenly becomes greater, this can then not be due to the relaxation behavior of the vessel, but rather tends to indicate a change of internal pressure. Taking these insights into account, processing of the measured forces can then be appropriately controlled.

Please amend the paragraph beginning at page 7, line 3 of the translation as follows:

The relaxation curve is preferably predicted using the support points in conjunction with a non-linear optimization method. Such methods are known. For example, the evolution strategy, simulated annealing, thresholding ~~[sic]~~ accept, random cost method and self-adapted annealing can be used. These methods permit a prediction to be made for the near future from the recent past.

Please amend the paragraph beginning at page 9, line 14 of the translation as follows:

> For reasons of clarity, curve 10 of the average values is shown in Figure 1 somewhat above relaxation curve 30 after point in time 2000 (horizontal axis). However, in reality the two curves 10 and 30 coincide outside of the jumps, and would therefore lie ~~superposed~~ superimposed on one another.